

Permit Fact Sheet

General Information

Permit Number:	WI-0003018-09-1
Permittee Name:	Foremost Farms USA
Address:	100 North Main St
City/State/Zip:	Clayton WI 54004
Discharge Location:	SE ¼ and NE ¼ of Section 13, T33N-R15W as well as SW ¼ of Section 18, T33N-R14W
Receiving Water:	A ditch emptying into Little Moon Lake and the groundwater of Barron County (Hay River watershed within the Lower Chippewa River basin) and Polk County (Beaverbrook watershed within the St. Croix River basin).
StreamFlow (Q _{7,10}):	N/A
Stream Classification:	Little Moon Lake is full fish and aquatic life
Wild Rice Impacts:	No impacts identified. No wild rice waters inventoried on the surface water.

Facility Description

Foremost Farms, USA – Clayton operations include receiving, transfer, and storage of bulk milk from dairy farms and other outside locations. Milk intake volume is approximately 1.2 million pounds per day. The primary products produced at the Clayton location is mozzarella and whey solids. The whey is concentrated by a reverse osmosis and ultra-filtration systems. Next the whey is processed in an evaporative condenser. Condensed whey is shipped to other Foremost Farms plants for further processing.

The main treatment system consists of a 2-part oval aeration channel, designed to treat 82,000 gallons per day and 1,700 pounds per day of BOD. Treated effluent may be stored in a holding pond through the winter. Water from the storage pond is sent back to the last treatment unit of the oval aeration channel before being sent to spray irrigation or the seepage cells.

The facility produces a variety of different types of waste streams that are discharged to six different outfalls:

Outfall 001 – A spray irrigation system is the main discharge system. The spray fields total 65.8 acres of fields from April 15th to October 31st annually. The spray fields are planted with grasses and harvested 2 to 3 times each summer. Four monitoring wells are located around the spray fields to measure groundwater impacts.

Outfall 002 – The other land treatment system is seepage cells. There are three seepage cells with three monitoring wells located around the cells to measure groundwater impacts.

Outfall 003 – Non-contact cooling water is discharged to Little Moon Lake via a drainage ditch. The permit sets a temperature limit of 90 degrees F. On January 25, 2002 the facility received approval for a chemical feed chlorination/dechlorination unit to be used on the cooling water.

Segregated waste is discharged through landspreading Outfalls 004, 005, 007 and 008.

- Some high strength process wastewater is segregated from the volume sent to the aerated channel, because it is high in BOD or chlorides. Land application high strength wastewater is through Outfall 004.
- Outfall 005 is sludge removed from the aerated channel and storage pond.
- Outfall 007 is for emergency discharges of waste antibiotic milk, raw whey, condensed whey, or dairy solids.

- Outfall 008 is restricted to high strength wastewater that is transferred to another permitted wastewater facility.

Sample Point Designation	
Sample Point Number	Sample Point Location, WasteType/sample Contents and Treatment Description (as applicable)
701 INFLUENT	Representative influent samples shall be collected at the beginning of the oval aeration channel. Dissolved oxygen samples shall be taken within the first one third of the first arc of the aeration channel.
001 SPRAY IRRIGATION	Representative samples shall be collected as effluent leaves Aeration Cell #5 prior to discharging to the spray irrigation site (approximately 65.8 acres) located in the SE 1/4 Section 13, T33N-R15W, and the SW1/4 Section 18, T33N-R14W. Discharge is authorized from April 15 to October 31 annually.
002 SEEPAGE CELLS	Representative samples shall be collected prior to discharge to the seepage cells located in the NE1/4 Section 13, T33N-R15W.
003 SURFACE WATER – NCCW	Representative samples shall be collected prior to discharge to the drainage ditch leading to Little Moon Lake in the Hay River watershed of the Lower Chippewa River basin. All discharges shall be limited to non-contact cooling water.
004 LAND APPL – LIQUID	Representative samples shall be collected prior to land application. Discharges from Outfall 004 shall be limited to landspreading high strength waste on Department-approved sites.
005 LAND APPL – SOLIDS	Representative samples shall be collected prior to land application. Discharges from Outfall 005 shall be limited to landspreading of sludge removed from the aerated ponds and storage pond on Department-approved sites.
007 LAND APPL – EMERGENCY	Representative samples shall be collected prior to land application. Discharges from Outfall 007 shall be limited to emergency landspreading of antibiotic milk, raw whey, condensed whey, or dairy solids on Department-approved sites.
008 HIGH STRENGTH WASTEWATER	Waste stream shall be limited to high strength chloride wastewater segregated from the wastewater streams for hauling to a permitted entity. Representative samples shall be collected from the wastewater storage tanks prior to removal.
101 INPLANT	Representative samples shall be collected as effluent leaves Aeration Cell #5 and is pumped into the storage pond.

Changes from the Previous Permit:

The descriptions for 001 and 101 have been updated with “Aeration Cell #5” to describe the sampling location more accurately. The permittee wished to clarify that Sample point 008 will be limited to high strength “chloride” wastewater.

Sample Point Designation For Groundwater Monitoring Systems		
System	Well Name	Comments
Seepage Cells	MW-01 (818)	Point of standard well side or downgradient of the seepage cells
	MW-02 (819)	Upgradient background well
	MW-03 (820)	Enforcement standard well downgradient of the seepage cells
Spray Irrigation	MW-6A (810)	Downgradient of the spray fields
	MW 9 (814)	Point of standard well downgradient of the spray fields
	MW 10 (815)	Point of standard well downgradient of the spray fields
	MW 11 (816)	Upgradient background well used to calculate the PALs

Changes from the Previous Permit:

The permittee has installed three monitoring wells around the seepage cells to measure groundwater impacts. These new wells have been designated a separate system from the spray irrigation fields. In the future upgradient well 819 may be used to calculate PALs for these wells.

1 Influent - Proposed Monitoring

Sample Point Number: 701- AERATION CHANNEL INFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Total Daily	
BOD5, Total		mg/L	2/Month	24-Hr Comp	
Chloride		mg/L	2/Month	24-Hr Flow Prop Comp	
Dissolved Oxygen, Lagoon		mg/L	2/Month	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

No changes from the previous permit. Influent monitoring is needed to assess loading to the facility and treatment performance. The required parameters and sampling frequency are appropriate for a land treatment system (ch NR 206, Wis. Adm. Code).

2 Inplant - Proposed Monitoring and Limitations

Sample Point Number: 101- STORAGE POND

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Total Daily	
BOD5, Total	Monthly Avg	200 mg/L	2/Month	Grab	
Chloride		mg/L	2/Month	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

No changes from the previous permit.

3 Surface Water - Proposed Monitoring and Limitations

Sample Point Number: 003- COOLING WATER TO DRNG DITCH

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Total Daily	
Temperature	Daily Max	90 deg F	Weekly	Grab	
Chlorine, Total Residual	Daily Max	0.019 mg/L	Weekly	Grab	
Chlorine, Total Residual	Monthly Avg	0.0073 mg/L	Weekly	Grab	
Chlorine, Total Residual	Weekly Avg	0.0073 mg/L	Weekly	Grab	
Phosphorus, Total		mg/L	Monthly	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

No changes with the previous permit. Information on calculating limits for the parameters listed above can be found in the "Water Quality-Based Effluent Limitations for Foremost Farms USA - Clayton (WI-0003018)" memo dated January 9, 2020. The monitoring and limitations are consistent with Noncontact Cooling Water discharges.

4 Land Treatment – Proposed Monitoring and Limitations

Sample Point Number: 001- SPRAY IRRIGATION FIELD

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate	Monthly Avg - LT	0.329 MGD	Daily	Total Daily	
Hydraulic Loading Rate		gal/ac/day	Daily	Calculated	
Nitrogen, Total		mg/L	2/Month	Grab	
Chloride		mg/L	2/Month	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

There are no changes from the previous permit. Requirements for land treatment of industrial wastewater are determined in accordance with ch. NR 214 Wis. Adm. Code.

Sample Point Number: 002- SEEPAGE CELLS

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Total Daily	
BOD5, Total		mg/L	Weekly	Grab	
Suspended Solids, Total		mg/L	Weekly	Grab	
Nitrogen, Total Kjeldahl		mg/L	Weekly	Grab	
Chloride	Weekly Avg	500 mg/L	Weekly	Grab	Limit ends November 30, 2020.
Chloride	Weekly Avg	900 mg/L	Weekly	Grab	Limit begins with modification effective date, December 1, 2020, and continues through the permit term.
Nitrogen, Nitrite + Nitrate Total	Weekly Avg	20 mg/L	Weekly	Grab	
Nitrogen, Ammonia (NH3-N) Total	Weekly Avg	19.4 mg/L	Weekly	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements

Requirements for land treatment of industrial wastewater are determined in accordance with ch. NR 214 Wis. Adm. Code.

Chloride –The permittee has requested an increase of the current chloride limitation of 500 mg/L. In the “Foremost Farms USA Clayton Groundwater Evaluation Report Addendum” dated August 18, 2022 current groundwater data supports an increased chloride loading. A limit of 900 mg/l replaces the current limit of 500 mg/L.

Groundwater – Proposed Monitoring and Limitations

4.1 Groundwater Monitoring System for Seepage Cells

Location of Monitoring system: Around the seepage cells

Wells to be Monitored: MW-01 (818), MW-02 (819), MW-03 (820)

Well Used To Calculate PALs: MW-02 (819)

Enforcement Standard Wells: MW-03 (820)

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Depth To Groundwater	feet	*****	N/A	Quarterly
Groundwater Elevation	feet MSL	*****	N/A	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	4.0	10	Quarterly
Nitrogen, Total Kjeldahl Dissolved	mg/L	*****	N/A	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.4	N/A	Quarterly
pH Lab	su	7.7	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Solids, Total Dissolved	mg/L	370	N/A	Quarterly

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

The permittee has installed three monitoring wells around the seepage cells to measure groundwater impacts. These new wells have been designated a separate system from the spray irrigation fields. Once there is more groundwater data upgradient well 819 may be used to calculate PALs for these wells. Until that time PALs based on well 816 have been included are being used.

Groundwater limits and requirements are determined in accordance with ch. NR 140, Wis. Adm. Code. Indicator parameter Preventive Action Limit (PAL) values are established per s. NR 140.20 Wis. Adm. Code. Alternative Concentration Limits as allowed under s. NR 140.28 Wis. Adm. Code, are established on a case by case basis.

4.2 Groundwater Monitoring System for Spray Irrigation

Location of Monitoring system: Near the southern edge of the 65.8 acre spray irrigation system

Wells to be Monitored: 810 (MW-6A), 814 (MW 9), 815 (MW 10), 816 (MW 11)

Well Used To Calculate PALs: 816 (MW 11)

Enforcement Standard Wells: 815 (MW 10), 814 (MW 9)

Parameter	Units	Preventative Action Limit	Enforcement Standard	Frequency
Depth To Groundwater	feet	*****	N/A	Quarterly
Groundwater Elevation	feet MSL	*****	N/A	Quarterly
Nitrogen, Nitrite + Nitrate (as N) Dissolved	mg/L	4.0	10	Quarterly
Nitrogen, Total Kjeldahl Dissolved	mg/L	*****	N/A	Quarterly
Nitrogen, Ammonia Dissolved	mg/L	0.97	9.7	Quarterly
Nitrogen, Organic Dissolved	mg/L	2.4	N/A	Quarterly
pH Lab	su	7.7	N/A	Quarterly
Chloride Dissolved	mg/L	125	250	Quarterly
Solids, Total Dissolved	mg/L	370	N/A	Quarterly

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements

No changes from the previous permit. Groundwater limits and requirements are determined in accordance with ch. NR 140, Wis. Adm. Code. Indicator parameter Preventive Action Limit (PAL) values are established per s. NR 140.20 Wis. Adm. Code. Alternative Concentration Limits as allowed under s. NR 140.28 Wis. Adm. Code, are established on a case by case basis.

5 Land Application - Sludge/By-Product Solids (industrial only)

Sample Point Number: 004- PROCESS WASHWATER

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Total Kjeldahl		mg/L	Monthly	Grab	
Chloride		mg/L	Monthly	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

No changes from the previous permit. Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code.

Sample Point Number: 005- AERATION & LAGOON SLUDGE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Total Kjeldahl		mg/L	Monthly Annual	Grab	
Chloride		mg/L	Monthly Annual	Grab	
Phosphorus, Total		mg/L	Annual	Grab	
Phosphorus, Water Extractable		% of Tot P	Annual	Grab	
Potassium, Total Recoverable		mg/L	Annual	Grab	
Nitrogen, Ammonia (NH ₃ -N) Total		mg/L	Annual	Grab	
pH Lab		su	Annual	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

The monitoring frequency for Total Kjeldahl Nitrogen and Chloride have been changed from “Monthly” to “Annual” to match the other required parameters. Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code.

Sample Point Number: 007- OFF SPEC DAIRY PRODUCTS

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Hydraulic Application Rate		gal/acre	Per Occurrence	Calculated	
Nitrogen, Total Kjeldahl		mg/L	See Permit Note	Grab	
Chloride		mg/L	See Permit Note	Grab	
Phosphorus, Total		mg/L	See Permit Note	Grab	
Phosphorus, Water Extractable		% of Tot P	See Permit Note	Grab	
Potassium, Total		mg/L	See Permit	Grab	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Recoverable			Note		

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

No changes from the previous permit. Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code.

Sample Point Number: 008- HIGH STRENGTH WASTE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Total Kjeldahl		mg/L	Monthly	Grab	
Chloride		mg/L	Monthly	Grab	
BOD5, Total		mg/L	Monthly	Grab	

Changes from Previous Permit & Explanation of Limits and Monitoring Requirements:

In the description of the sample point has been updated to “High Strength Chloride Wastewater” Requirements for land application of industrial sludge are determined in accordance with ch. NR 214 Wis. Adm. Code.

6 Schedules

6.1 Seepage Cell Upgrade

Required Action	Due Date
Final Plans and Specifications: The permittee shall obtain approval of the final construction plans and schedule from the Department pursuant to s. 281.41, Stats. These plans shall include seepage cell rehabilitation and installation of three new monitoring wells, or a detailed description for an alternative method of wastewater treatment approved in writing by the Department.	07/15/2020
<p>Complete Upgrades to meet NR 214.12 and NR 141 Wis. Adm. Code: The permittee shall complete all construction of wastewater treatment system upgrades.</p> <p>1) Submit a complete Land Treatment Management Plan per NR 214.12(5) Wis. Adm. Code for approval</p> <p>2) Complete the seepage cell rehabilitation, or implement the alternative approved wastewater treatment plan</p> <p>3) Complete well installation in accordance with ch NR 141, Wisconsin Administrative Code. (Note:</p>	10/31/2020

Documentation of well construction must be submitted to the Department within 60 days of well installation. These documents include well construction forms, well survey and an updated well map.)	
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Explanation of Schedules

Seepage Cell Upgrade – Inclusion of the schedule is no longer needed. By the time the modified permit effective date the upgrade will be complete.

Attachments:

Updated Water Flow Schematic(s)

“Foremost Farms USA Clayton Groundwater Evaluation Report Addendum” dated August 18, 2022

Expiration Date:

June 30, 2025

Justification Of Any Waivers From Permit Application Requirements

N/A Permit modification

Prepared By:

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Date: September 15, 2020

cc: Jordan Englebert, Spooner